Commonwealth of Kentucky
Division for Air Quality

PERMIT STATEMENT OF BASIS

DRAFT
Conditional Major / Synthetic Minor, Operating
Permit: F-07-003
NRE Acquisition Co LLC – VMV Paducahbilt
Paducah, Kentucky 42003
February 7, 2008
Rick Shewekah, Reviewer

SOURCE ID:	21-145-00019
SOURCE A.I. #:	3077
ACTIVITY ID:	APE20040002

SOURCE DESCRIPTION:
The facility specializes in the remanufacture and overhaul of locomotives. Activities at the facility include surface coating operations, steel shot blasting to clean metal parts, sand blasting of locomotive parts and engines, equipment welding, heat treatment of handrails, degreasing operations and testing of locomotive engines. The facility is also equipped with three small industrial boilers (each less than 250 MM Btu/hr), and various insignificant activities. The company name and ownership was changed in 2003 from VMV Enterprises, Inc. to NRE Acquisition Co LLC – VMV Paducahbilt.

This source has been operating pursuant to the requirements of current permit F-99-013, Revision 2, issued November 12, 2001. The permittee submitted a request for renewal of their existing Conditional Major operating permit on June, 14, 2004. As such, this permit is the renewed issuance of the source's plant-wide Conditional Major operating permit.

COMMENTS:
Since the issuance of current permit F-99-013, Revision 2, certain equipment at the facility has been taken out of service and/or modified. The following table summarizes the status of the emission points at this source and any related changes made at the facility since the issuance of permit F-99-013, Revision 2.

Emission Sources Listed Under Permits F-99-013 (Revision 1)		**Explanation of Change**
EP #	**Emission Point Description**	
01 (VMV01)	Open face Spray Booth	Paint booth and spray capability permanently removed from service. The booth area will be utilized for buffing and grinding of top deck covers and other engine components. The buffing and grinding activity is identified as 15 on the DAQ list of Trivial Activities; and the ventilation and filtering capabilities of the booth are Item 3 on the DAQ list of Trivial Activities. This emission point is removed from the permit.
02	Painting from Spray Cans (not in a booth)	No change.
03 (VMV117,	Vacublast Units	No change.

Emission Sources Listed Under Permits F-99-013 (Revision 1)		Explanation of Change
EP #	**Emission Point Description**	
VMV118)		
04 (VMV06)	Rotoblaster	No change
05 (VMV09)	Abrasive blasting of locomotive parts and engines	NRE is requesting to utilize two blast media. The primary media will continue to be river sand as indicated in the current permit and the new alternate media will be fine black beauty (coal slag). The usage of the media will be tracked separately and emission rates will continue to reflect material usage as specified in the existing permit.
06 (VMV11)	Arc Welding.VMV11 is 3 General Welding	No change
07 (VMV13, VMV14, and VMV15)	Heat Treatment Furnaces	An 840,000 Btu/hr burner was installed in VMV15 in lieu of the 1,500,000 Btu/hr burner approved in Revision 1 to F-99-013. Furnaces VMV13 and VMV 14 have been removed from the permit and will not be used.
08	Indirect Heat Exchangers	No change.
09 (VMV08 and VMV126)	Locomotive Spray Booths	VMV08 was originally permitted as a traveling waterwall booth and was approved to be modified to use a fabric filter in Revision 1 to F-99-013. Due to financial difficulties the booth was not modified, but was operated by VMV Enterprises under the alternative operating scenario allowed by Section H of the existing permit. NRE Acquisition Co., LLC has continued to operate VMV08 under the alternative operating scenario because the original modification window expired and the planned expanded capacity is no longer required. As such, this renewal returns the operating parameters for VMV08 to the original CM permit conditions.
10	Direct Heat Units	No change.
11	Fugitive Emissions from the Haul Roads	Most plant roads have been paved since issuance of the original CM permit, emission calculations reflect this change. This EP was moved to section C since it meets the insignificant activity criteria.
13 (VMV18-VMV20, VMV34, VMV37-VMV41, VMV43, VMV51-VMV56, VMV121)	18 Cold Cleaner Degreaser Units	No change.
17 (VMV44 and VMV45)	Dip Coating of Metal Parts	There has been no change to this unit, except during 2007 the original polyester resin varnish PDG-600-DAP has been discontinued and replaced with an equivalent new varnish, Esterlite 805.
18 (VMV122)	Testing of Locomotive Engines	Emission computations supporting the original CM permit reflected a sulfur content range of 0.2 to 0.5%. NRE has proposed during this review to use a low sulfur fuel with a maximum sulfur content of 500 ppm as the primary fuel and an ultra-low sulfur fuel with a maximum sulfur content of 15 ppm as the alternative fuel.
19 (VMV124 and VMV125)	Rod and Head Spraying	No change.
20 (VMV105)	Painting of engines and other parts.	No change.
21 (PAU 1-4)	Painting of locomotive insides and other painting outside of permanent booths	No change.
24 (VMV50)	Blasting of locomotive parts	Removed. This unit has been dismantled and moved off site.
25 (SG-1)	Painting of locomotive	No change.

Emission Sources Listed Under Permits F-99-013 (Revision 1)		Explanation of Change
EP #	**Emission Point Description**	
	parts	
Insignificant Activities		
1	Ten (10) Enclosed Washers	No change
2	Two (2) Oil/Water Separators	No change
	6 Diesel Storage tanks, 38k gal cap total	No change
	1 gasoline, 1k gal cap	No change
	3 Lube Oil, 9k gal cap total	No change
	6 Waste Oil 18k gall cap total	No change
3 (EP23)	1 Kerosene 1k gal cap	No change
4		No change

Type of control and efficiency:
A paper cartridge filter on each blaster having an efficiency of 99%, with additional building capture of 50% due to inside exhaust, reflects PM emissions control for EP03 (VMV117, VMV118). A closed system with a paper cartridge filter with efficiency of 99.9% is used to control PM emissions from EP04 (VMV06). Four fabric filter baghouses with an efficiency of 99%, with an additional 95% building capture (overall 99.95%), are used to control PM from EP05 (VMV09) and EP24 (VMV50). The semi-enclosed building provides an assumed 75% control efficiency for EP06 (VMV11) PM emissions. Water walls with an efficiency of 90% are used to control PM from EP09 (VMV08). A.J. Draille filters or equivalent with an efficiency of 99.9% are used to control PM from EP09 (VMV126). SUPRA V filters or equivalent with an efficiency of 98% are used to control PM from EP19 (VMV124 and VMV125). Fabric filters with an efficiency of 97% are used to control PM emission from EP20 (VMV105). HEPA filters with an efficiency of 95.9% are used to control PM from EP21 (PAU 1-4). Exhaust filters with an efficiency of 99% are used to control PM from EP25

Emission factors and their source:
Emission factors (EF) for EPs 02, 09, 19, 20, 21, and 25 were obtained through MSDS and material balance. EF for EP04 were obtained through the manufacturers; specifications. EF for EPs 05 and 13 were obtained through material balance. EF for EPs 06, 07, 08, 10, and 11 were obtained from AP-42. EF for EP17 were obtained from material balance and AP-42 for combustion, and EF for EP18 were obtained from stack testing and AP-42. EP23 storage tank emissions are calculated based on U.S. EPA TANKS 4.0.9d.

Applicable regulations:
401 KAR 61:020, *Existing Process Operations*, applies to each affected facility associated with a process operation which is not subject to another emission standard with respect to particulates commenced before July 2, 1975. This applies to **EP02, EP06, and EP09 (VMV08).**

401 KAR 59:010, *New Process Operations*, applicable to each affected facility or source, associated with a process operation, which is not subject to another emission standard with respect to particulates, commenced on or after July 2, 1975. This applies to **EP03, EP04, EP05, EP09 (VMV126), EP17, EP19, EP20, EP21, EP24, and EP25** in Section B of the permit and the ten

(10) Enclosed Washers in section C**.**

401 KAR 59:015, *New Indirect Heat Exchangers*, particulate matter and sulfur dioxide emissions limitations apply to affected facilities with a capacity of 250 million Btu/hr heat input or less and greater than one (1) million Btu/hr, and commenced after April 9, 1972. This applies to **EP08**, which is comprised of three (3) boilers installed in 1987 with heat input capacities of 2.093, 12.555 and 4.187 mmBtu/hr. Pursuant to 401 KAR 59:015, Section 4(1), and initial permit F-99-013, the particulate emission rate limit for EP08 is determined as follows:

PM Emission rate (lb/mmBtu) $= 0.9634 \times (\text{total heat input rating for the source})^{-0.2356}$
$= 0.9634 \times (18.835)^{-0.2356}$
$= 0.4824$ lb/mmBtu

Pursuant to 401 KAR 59:015, Section 5(1), and initial permit F-99-013, the SO_2 emission rate limit for EP23 is determined as follows:

SO_2 Emission rate (lb/mmBtu) $= 7.7223 \times (\text{total heat input rating for the source})^{-0.4106}$
$= 7.7223 \times (18.835)^{-0.4106}$
$= 2.313$ lb/mmBtu

401 KAR 63:010, *Fugitive Emissions*, applies to each affected facility which emits or may emit fugitive emissions provided that the fugitive emissions from such facility are not elsewhere subject to an opacity standard within the administrative regulations of the Division for Air Quality. This applies to **EP11** in section C of the permit.

Non-applicable regulations:

401 KAR 59:225, *New Miscellaneous Metal Parts and Products Surface Coating Operations*, applies to each facility commenced on or after February 4, 1981 which is part of a major source and is located in a county or portion of a county designated attainment or marginal nonattainment for ozone in 401 KAR 51:010. This rule does not apply any of the paint booths at the source, since this is not a major source.

40 CFR 63, Subpart MMMM, *National Emission Standards for Hazardous Air Pollutants for Surface Coating of Miscellaneous Metal Parts and Products*, applies to major HAP emitting sources, as such is defined at 40 CFR 63.2. This rule does not apply to the painting units at the source since this is not a major HAP emitting source.

401 KAR 59:095, *New Oil-Effluent Water Separator*s, does not apply to the two (2) oil/water separators as insignificant activities since this is not a major source of VOC.

401 KAR 59:185, *New Solvent Metal Cleaning Equipment*, does not apply to any metal cleaning activity at this plant since the source is not located in a county or portion of a county which is designated ozone nonattainment, for any nonattainment classification except marginal, under 401 KAR 51:010; nor is this a major source.

40 CFR 63 Subpart T, *National Emission Standards for Halogenated Solvent Cleaning, Alternative Standards*. The requirements of this rule are not included in the permit since the source does not operate an affected solvent cleaning machine using a listed halogenated solvent in a total concentration greater than 5 percent by weight.

401 KAR 59:050, *New Storage Vessels for Petroleum Liquids*, does not apply to the EP 23 storage tanks because this is not a major source of VOC, nor do the tank capacities exceed 40,000 gallons.

401 KAR 61:050, *Existing Storage Vessels for Petroleum Liquids*, does not apply to the EP23 storage tanks because the source is not located in an ozone nonattainment area.

40 CFR 60, Subpart Kb, *Standards of Performance for Volatile Organic Liquid Storage Vessels (Including Petroleum Liquid Storage Vessels) for Which Construction, Reconstruction, or Modification Commenced After July 23, 1984,* does not apply to the EP23 storage tanks because the storage capacity of each tank is less than the rule applicability threshold of 75 cubic meters (m^3) (19,812 gallons).

40 CFR 60, Subpart Dc, *Standards of Performance for Small Industrial-Institutional Steam Generating Units,* applies to units less than or equal to 100 MMBtu/hr but greater than or equal to 10 mmBtu/hr commenced after June 9, 1989. This rule is not applicable to the one (1) 12.555 mmBtu/hour boiler (EP08), as this unit was installed in 1987 and there are no approvals for modification/reconstruction.

40 CFR 60, Subpart IIII, *New Source Performance Standards for Stationary Compression Ignition Internal Combustion Engines,* do not apply to the two (2) test cells, EP18 (VMV122), since the requirements of this rule are not applicable to stationary CI ICE being tested at a stationary CI ICE test cell/stand, pursuant to 40 CFR 60.4200(b).

40 CFR 64, *Compliance Assurance Monitoring (CAM),* does not apply to any emission unit because this source is being approved to operate under a Conditional Major permit and, pursuant to 40 CFR 64.2(a), the requirements of this rule are applicable only to a source required to obtain a Title V (Part 70 or 71) permit.

EMISSION AND OPERATING CAPS DESCRIPTION:

To preclude the applicability of 401 KAR 52:020, *Title V permits*, the total annual source-wide emissions shall not exceed the following limitations on a twelve (12) consecutive month basis.

a. Nitrogen oxides (NO_x) emissions shall not exceed 90 tons per twelve (12) consecutive month basis;
b. Particulate matter (PM) emissions shall not exceed 90 tons per twelve (12) consecutive month basis;
c. Volatile organic compound (VOC) emissions shall not exceed 90 tons per twelve (12) consecutive month basis;
d. Emissions of any single hazardous air pollutant (HAP) shall not exceed 9 tons per twelve (12) consecutive month basis; and
e. Emissions of combined hazardous air pollutants (HAPs) shall not exceed 22.5 tons per twelve (12) consecutive month basis.

The above specified source emission limits are revised from the original CM permit, as the permittee has requested that the compliance averaging period be increased from a consecutive 52-week basis to a consecutive 12-month basis. Further, due to equipment removal during this renewal review, the prior carbon monoxide (CO) limit of 97 tons per consecutive 52-week basis was removed from Section D of the permit as the potential to emit of CO is below the TV threshold.

Additionally, permit F-99-013 indicated the permit type to be Condition Major, as well as synthetic minor pursuant to 401 KAR 51:017 (PSD). Since this source is not one of the 28 specifically listed source categories, the threshold for rule applicability is 250 tons per year for a regulated pollutant. Compliance with the VOC and NOx limits shall also make this source a synthetic minor source pursuant to 401 KAR 51:017, Prevention of significant deterioration of air quality.

PERIODIC MONITORING:

a. The permittee shall monitor monthly raw material usages as specified in the permit to demonstrate compliance with all requirements of this permit, including the source-wide emission and operating cap limitations.
b. The permittee shall perform a qualitative visible observation of the opacity of emissions from each stack on a weekly basis and maintain a log of the observation. If visible emissions from a stack are seen, then the opacity shall be determined by EPA Reference Method 9 and an inspection shall be initiated for any necessary repairs. The opacity observed shall be recorded in the log.
c. The permittee shall monitor pressure drop readings across particulate filters/baghouses and water wall as required.
d. Particulate filters for emission point E06 shall be visually inspected once per shift.

CREDIBLE EVIDENCE:

This permit contains provisions which require that specific test methods, monitoring or recordkeeping be used as a demonstration of compliance with permit limits. On February 24, 1997, the U.S. EPA promulgated revisions to the following federal regulations: 40 CFR Part 51, Sec. 51.212; 40 CFR Part 52, Sec. 52.12; 40 CFR Part 52, Sec. 52.30; 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12, that allow the use of credible evidence to establish compliance with applicable requirements. At the issuance of this permit, Kentucky has only adopted the provisions of 40 CFR Part 60, Sec. 60.11 and 40 CFR Part 61, Sec. 61.12 into its air quality regulations.